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when in orbit, transferring heat coupled to the opposite facing fixed payload radiators to the deployable radiators disposed on the opposite side of the spacecraft for radiation into space from both sides to the deployable radiators.

REMARKS

Regarding the status of the present application, Claims 1-3 have been amended, and are pending in this application. Reconsideration of this application is respectfully requested.

The drawings were objected to under 37 CFR 1.83(a). The Examiner indicated that the heat pipes must be shown or the feature(s) canceled from the claim(s). It appears that the wrong set of drawings was sent with the original application which did not identify the heat pipes 25 or the aft deck 14.

The specification states that " The one or more coupling or loop heat pipes 25, may extend across an aft deck 14 of the body 11 of the spacecraft 10 to connect or couple the north and south facing fixed payload radiator 21, 22 to the two-sided deployable radiator 23, 24 disposed on the other side of the spacecraft 10", which are now shown in amended Figs. 1-3.

Enclosed herewith are amended drawings having proposed drawing corrections marked in red ink. Also enclosed are replacement reproducing masters containing the drawing amendments. No new matter has been entered. Withdrawal of the Examiner's objection is respectfully requested.

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 5,787,969 issued to Drolen et al in view of US Patent No. 5,755,406 issued to Aston et al.

The Drolen et al. patent is cited as disclosing "a spacecraft radiator system having a first and second opposite facing payload radiators, one or more deployable radiators and heat pipes that thermally couple the payload radiators to selected ones of the deployable radiators." The Examiner admitted that the Drolen et al. patent lacks "the solar arrays". The Aston et al. patent is cited as disclosing that solar arrays are well known in the art.

The Drolen et al. patent discloses "A closed-loop heat pipe transport design for a deployment application having a flexible section which connects to a payload structure and a deployable structure. The flexible section is a coil which is offset from the axis of rotation of the deployable structure. Upon rotation of the deployable structure around a predetermined axis, the flexible coil decompresses and sweeps in an arcuate fashion with a portion of said flexible coil aligning with the axis. When the deployable structure has completed its rotation and is fully deployed, the flexible coil will rest in substantially the same plane as it did before sweeping."

The Drolen et al. patent discloses both fixed and deployable radiators. The Drolen et al. patent discloses that flex coils 22 are used to couple the fixed and deployable radiators on one side of the spacecraft. However, it is respectfully submitted that the Drolen et al. patent does not disclose or suggest that the fixed radiator on one side of the spacecraft is coupled to the

deployable radiators on the opposite side of the spacecraft, as is provided by the present invention.

Claim 1 calls for a spacecraft radiator system comprising "heat pipes that thermally couple each payload radiator to the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator."

Claim 2 calls for a spacecraft comprising "heat pipes that thermally couple the respective payload radiators to the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator."

Claim 3 calls for a spacecraft heat dissipation method that comprises "configuring a spacecraft to have a body, one or more solar arrays, first and second opposite facing fixed payload radiators, one or more deployable radiators that radiate heat from both sides thereof, and heat pipes that thermally couple the respective payload radiators to the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator."

It is respectfully submitted that the Drolen et al. patent or Aston et al. patents, taken singly or together, do not disclose or suggest these aspects of the presently claimed invention. Therefore, it is respectfully submitted that the inventions recited in Claims 1-3 are not disclosed or suggested by the Drolen et al. patent or Aston et al. patents, taken singly or together. Accordingly, withdrawal of the Examiner's rejection and allowance of Claims 1-3 are respectfully requested.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure to the extent indicated by the Examiner.

Attached hereto is a marked-up version of the changes made to the claims by the present amendment. The attached page is captioned "Version with markings to show changes made."

In view of the above, it is respectfully submitted that all pending Claims are not anticipated by, nor are they obvious in view of the cited patents, and are therefore patentable. Accordingly, it is respectfully submitted that the present application is in condition for allowance. Reconsideration and allowance of this application are earnestly solicited.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE CLAIMS**

The Claims have been amended as follows.

1. (Amended) A spacecraft radiator system for use on a spacecraft having a body and one or more solar arrays, the system comprising:

first and second opposite facing payload radiators;

one or more deployable radiators that radiate heat from both sides thereof; and

5 heat pipes that thermally couple each payload radiator [radiators] to [selected ones of] the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator.

2. (Amended) A spacecraft comprising:

a body;

one or more solar arrays; and

a spacecraft radiator system comprising:

5 first and second opposite facing payload radiators;

one or more deployable radiators that radiate heat from both sides thereof; and

heat pipes that thermally couple the respective payload radiators to [selected ones of] the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator.

3. (Amended) A spacecraft heat dissipation method comprising the steps of:

configuring a spacecraft to have a body, one or more solar arrays, first and second opposite facing fixed payload radiators, one or more deployable radiators that radiate heat from both sides thereof, and heat pipes that thermally couple the respective payload radiators to
5 [selected ones of] the one or more deployable radiators disposed on a side of the spacecraft that is opposite to the respective payload radiator;

launching the spacecraft into orbit; and

when in orbit, transferring heat coupled to the opposite facing fixed payload radiators to the deployable radiators disposed on the opposite side of the spacecraft for radiation into space
10 from both sides to the deployable radiators.



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Fig. 2

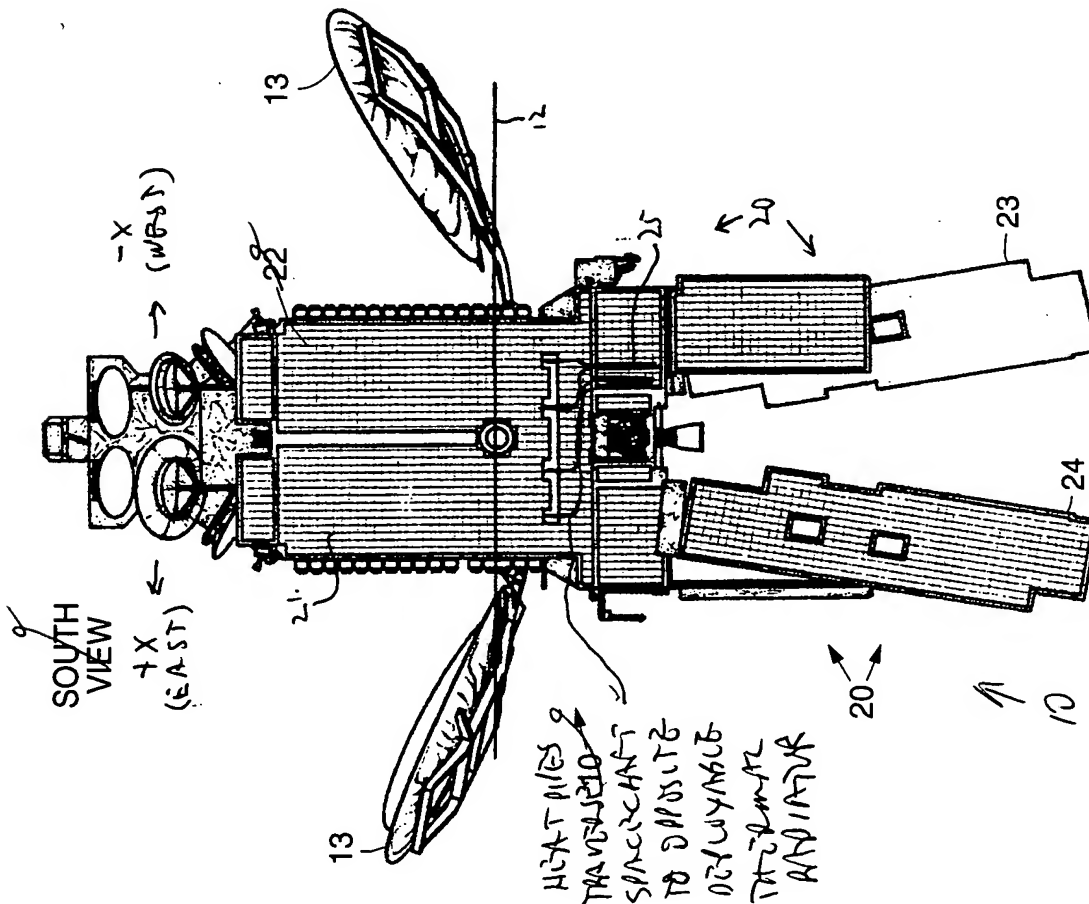


Fig. 3

